

Applicant: Randall S. Estep
Application Serial No. 09/914,969
Filed: September 6, 2001
Date: December 15, 2004

REMARKS

In response to the Office Action mailed July 15, 2004, Applicant has amended claims 1, 15 and 18 to better define the present invention. Further prosecution of the present application and reconsideration and withdrawal of the rejections of the claims are respectfully requested. Applicant earnestly believes that the amendments, which clearly show that the sealed chamber of the present invention is water-tight, make the claims of the present invention distinctive and patentable over the art cited. No new matter has been added. Further, Applicant believes that the best references have been found in the detailed searches conducted by the Examiner, such that no superior references will be found. As a result, Applicant believes that the application as presently claimed is in allowable condition and respectfully requests allowance of the claims as presently amended.

As previously explained, the present invention concerns a combination underwater diving mask and diving equipment and computer system responsive to voice commands, such as a personal computer system. The combination, as stated in the specification, is not merely a dive computer, but is instead a fully functional computer for use underwater. The dive mask is further specifically designed such that the user can speak while underwater, something atypical of dive masks. With a mask that permits the wearer to speak while underwater, and the addition of a computer that can be run by spoken instructions, the user can operate a fully functional computer while underwater. This permits the user to operate a computer while underwater, which permits, among

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other things, surveying, engineering operations and other tasks to be completed while diving.

Typically, "dive computers" are used to permit a SCUBA diver to keep track of the functions of his underwater equipment and to, with some systems, later chart the data, including time underwater, depth achieved and other similar information, to be charted. These instruments do not function in the manner that a personal computer, such as the well known PC or a MAC, function. So called "dive computers" are not able to run programs such as Windows or other operating systems, word processing, spread sheet, engineering data or other computer programs.

In sharp contrast, the computer system included in the present invention is such a computer, capable of operating in the manner of operation of a personal computer. As presently claimed, the device of the present invention is a vastly sophisticated computer for use by a diver in an underwater environment. The user carries the computer on his person and operates the functions of the computer utilizing voice recognition software. Applicant has amended the present application to more clearly claim that the dive mask is sealed, with a water-tight seal, about the mouth of the user, such that the user can command the computer while underwater. No other device shows this combination of elements and no combination of the cited references shows such a device. Further, the cited references do not in any way show a water-tight speaking chamber used to provide commands to a computer and such teaching would not have been obvious by the combination of the teachings of the cited references in any combination.

The Office Action has rejected claims 1-18 under 35 U.S.C. § 103(a) as being unpatentable over Hales (U.S. Patent No. 6,360,182) in view of Larson (U.S. Patent No. 6,066,129). Applicant restates that the computer taught by Hales is a typical "dive computer" of a type well known in the art. Such computers have limited abilities and

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provide information specifically about dive conditions, such as depth, oxygen use and supply and time in the water. While this information is crucial to the diver, it does not give the diver access to processing and data that can be gleaned from a fully functional computer, such as a PC. It is not in anyway an obvious step to replace such a computer with a fully functional PC type computer, as explained below.

So called "dive computers" are really not computers in the broad sense as they are "fixed function" instruments with a limited purpose. These purposes do not include allowing user navigation or control interface while in use (in fact, most dive computers cannot even be turned off by the user once it has been activated). A "dive computer" is primarily a gauge or monitor for dive planning and safety. Typically the functions of such computers is as follows: 1) has a sensor that records depth profiles; 2) has a timer that records dive duration; and 3) performs and reports an ongoing calculation based on Boyles Law of partial pressure and a corresponding algorithm that estimates the prevailing load of nitrogen in body tissues. This in itself is a mere automation of diving tables that were first developed by the U.S. Navy in the 1940's.

The distinction between "dive computers" and general purpose computers, that allow and encourage active user interface, is outlined in the Background of the Invention section of the present application. It certainly is no surprise that a "dive computer" can be mounted on a mask, as in Hales; due to their limited function, a dive computer is no larger than a fifty-cent piece and could literally be placed practically anywhere.

The present invention can perform the functions of a dive computer, but that is only a very small sub-set of the functionality of the present invention, as now claimed. Clearly, however, the "dive computer" of Hales cannot perform all of the functions of a general computer, which the device of the present invention, as now claimed can.

The device taught by the present application is truly a "computer" defined in the manner that is widely accepted in the modern lexicon. The device is intended to run applications of a wide variety, accepts commands and input from the user via two input methodologies, supports and controls peripheral devices, collects data from devices that

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are not sensors, and is intended for use in geography, geology, deep sea oil exploration, marine biology, construction, excavation, archeology, demolition, ship building and maintenance, surveillance, communication, education, treasure hunting, and military operations.

With respect to Larsen, there is no teaching in Larsen that would supplement Hales to the point of making the present invention obvious. Larson teaches the use of a laser in medical situations. While Larson teaches the use of speech recognition and head-up display, the environment in which the device of Larson is used could not be more different than the environment for the use of the present invention. Specifically, Applicant can find no disclosure in Larson showing a sealed speaking chamber. To the contrary, Larson (Fig. 9) shows an open mask and microphone. Figure 9 of Larson shows the shield device used by the user of the Larson device, there is no indication that the mask is sealingly engaged to the face of the user, as there would be no need for such sealing in an operating room environment. The sealing of the surgeons face within a mask could in fact be contrary and dilatory to good surgical procedure. Such a sealed environment would be uncomfortable to surgeon (whereas it is necessary to a diver) and would add the problems of fogging of the lens such that the surgeon could not see.

In order to speak in an underwater environment the diver must have his mouth sealed apart from the water, otherwise the user would drown. The mask of Larson is open, the user of a device made in accordance with the teachings of the Hales disclosure, would have a mask but also has a breathing apparatus in his mouth. The user could not speak with such an apparatus in his mouth. As there would be no reason to seal the shield of a surgeon in an operating room and as the simpler manner of diving is the manner shown in Hales (a separate mask and mouth breathing piece) and not the system whereby the entire face is sealed from the water environment, there is no suggestion of combining Hales and Larson to arrive at the device of the present invention.

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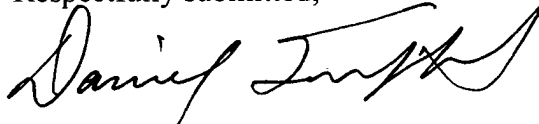
Applicant once again traverses the rejections of claims 2-3, 4-5, 9-14 and 15-18, discussed on pages 3 and 4 of the Office Action. The Office Action expresses the so called "obviousness" of the present invention in terms of hindsight. The Office Action has found no disclosure that would suggest the use of the various instruments, used in the present invention, in a dive/underwater situation. The complexity of the present system and the novelty of the system are clear in hindsight, but there is no reference that shows such a system, further the compilation of parts listed by the Office Action as being available and interchangeable is not an indication of obviousness. Also, as a "dive computer" of the type taught by Hales has served the needs of divers for a "dive-type computer" there is no suggestion in Hales of the need or desire for the inclusion of a general personal computer in an underwater environment. Most divers do not want the added weight of a full computer when all they are looking for is the simple environmental data provided by a "dive computer".

Applicant encloses a Request for Continued Examination (RCE) and a petition for extension of time to respond, as well as a check to cover the fees for the RCE and the fees for the petition for a 2 month extension of time. It is believed that no other fees or petitions are necessary in this reply and as a result of the amendments. However, should any fee be needed, please charge the following Deposit Account for any such fee, Deposit Account No. 23-0920, and deem this paper to be the required petition.

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Applicant hereby respectfully requests the withdrawal of the rejections of the Office Action and continued prosecution, reconsideration and reexamination. A sincere effort has been made to overcome the Office Action's rejections and to place the application in allowable condition. Applicant invites the Examiner to call applicant's attorney to discuss any aspects of the invention that the Examiner may feel are not clear or which may require further discussion.

Respectfully submitted,



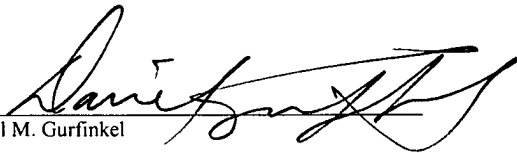
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December 15, 2004

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Daniel M. Gurfinkel

December 15, 2004
DATE